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THE NECESSITY

FOR A

Geological Survey of Pennsylvania.

The former survey of our State was made between 1836 and 1845, and was reviewed during three years ending 1854. For twenty years, therefore, we have had no knowledge of the progress or resources of the State. That was solely a geological and mineralogical survey, and the geology was largely topographical. There was then no good map of the State, some counties being practically uninhabited and unknown. Scarcely a railroad was then in operation, and of the numerous mines, quarries, and industries, that now people our State there then existed only so much as to presage the coming of the rest. Consequently that survey was devoted to Topographical, and Structural work. The people wanted to know what the State was like, and the survey became an exploring expedition. The work was so vast, that the formations were studied and classified under the greatest disadvantages. Important sections of the State were totally neglected, as far as any useful information was concerned, and the value of the work done is greatly lessened by the fact that it was classified under the strangest, and most unsatisfactory designations.

The Economical part of Geology was passed over; partly on account of the character of the survey, and partly from a total absence of knowledge of the subject. The publication of the results reached was delayed ten (10) years after the final completion of the survey. It is thus a perfectly fair statement to say that the old, and only survey of the State is worthless as a source of information on any subject, except topography and structural geology. On the latter branch its results have been outgrown.

Coal is the only mineral properly worked up in that survey, and even as regards coal the description of the chemical composition, and technical value of the various kinds (as fuel), is eminently unsatisfactory

Calculated from the space devoted to it in the report, forty-five (45) per cent. of the whole work of the survey was spent on Coal. Thirty-three (33) per cent. of the whole work was devoted to Anthracite alone, and only twelve (12) per cent. was applied to the other coals, in all parts of the State.

In this devotion to coal in its topographical and geological relations, a most important source of wealth was almost totally neglected, viz: Iron Ore. Only five (5) per cent of the work of the survey was devoted to this, although even at that time, the vast extent, and varied character of our ore deposits must have been surmised. The whole space devoted to the subject contains only a very superficial description of the ores themselves, and no chemical description at all valuable.

Of other ores, such as lead, silver, nickel, zinc, &c., only a mere geological mention is made; nothing else. As to chemical knowledge of our ores we are absolutely in the dark.

We find no notice of soils, fertilizing rocks and materials, clays and sand, our various waters ordinary and medicinal; and of petroleum, limestones, lime, and building stones and slates, only the most meagre description. The production of coal oil is fast rivaling the most important of our older industries, and is truly being developed in the dark. The many items in which geology can be an aid, and a guide in farm work were altogether passed over.

Of the entire work done
43 per cent. was devoted to Topography, and Structural Geology,
45 “ “ “ “ “ Geology of Coal, and only
12 “ “ “ “ “ Economical Geology of
100 all other useful minerals.

New Jersey is carrying on a survey which is most successful in gathering information, and which has added millions to the wealth of the State. It has no Coal at all, and yet it has devoted fifty (50) per cent. of the entire work to Economical Geology, while nineteen (19) per cent. is devoted to Iron Ores, and this represents more work than all we have on the same point in the survey of Pennsylvania, in an area seven (7) times as large.

The New Jersey report includes 535 analyses, the old Pennsylvania only 199. The latter moreover are valueless, many being incomplete.

We have here the proof, that our old report is silent on the most important economical subjects. Whether from want of attention, or from want of knowledge, this is equally lamentable.

In a modern survey the Economical, or Applied branches should predominate, or at least be allowed their fullest weight, whatever might be desired in other departments. The science of geology furnishes the rules and methods of research ; but there is no one man or person, nor scarcely any association of men, that can afford the time, or the means to collect the valuable information to be gained by working on those methods. That is for the State to do. The recompense is an increase of taxable property; for economical work of this kind actually increases real (and personal) estate by discovering mines and minerals. Thorough information raises the value of localities previously worked, so that there is always a development of wealth.

The whole State reaps the benefit of this work; for slow progress is due far more to imperfect knowledge of our circumstances, than to a lack of aspiration on the part of our citizens. Capital cannot be attracted to the State, nor can business be conducted to the best advantage, without the detailed information supplied by a Geological Survey. Indeed, if capital saw distinctly where it could be employed, we could without doubt keep at home, engaged in developing our resources, much money that now goes to incite speculation in financial centres.

It is a well known fact that hundreds of thousands of dollars of Pennsylvania capital have been already attracted elsewhere by the developments of geological explorations. Notably is this the fact toward New Jersey and Michigan, as well as Alabama and other Southern States. Pennsylvania is to-day largely dependant on New Jersey and Michigan for ores that probably exist in her own hills.

The Survey should be made a Gazateer, wherein every stranger could read of natural wealth to be developed; an Encyclopedia, in which every man could procure useful information concerning his neighborhood, and his own land; a Guide, to which all engaged in industrial and agricultural pursuits could look for unbiased, full information to protect them from costly mistakes, and the State from loss thereby.

A survey should be all this; but our old one is none of it. The State needs a new one, thoroughly organized, and conducted under modern ideas and in the light of fuller economical knowledge. We need it both to preserve the facts now known and to discover new ones. A vast mass of priceless information is daily lost merely for the want of collection. In the oil regions for instance, facts of inestimable value are lost by the disappearance of the notes of the oil borers. Our wheat crop is diminishing for want of knowledge of the special treatment required by the countless valleys of our State. We have no knowledge of our mineral fertilizers though probably possessing large deposits of them. We can form no estimate of the amount of timber land yet remaining to the State; a subject likely to become more and more important with the lapse of years.

The Western States are using Geological Surveys as advertisements to attract industry and population. Such operations pay them well, and will pay us also. Our State is now foremost in many industrial pursuits; and its inexhaustible riches of Coal furnish a powerful loadstone to attract manufactures of all kinds. It should therefore be prepared to show each man, as he comes, where his industry can be carried on to the best advantage.

It is unnecessary to dwell upon the importance of the information, to be obtained, in attracting industrial population and the trade it brings; in discovering and developing oil, our ores, our fuel, and our useful deposits; in enabling our farmers to better understand their soils and thereby increase their yields; in enlightening the public mind of our State on the source of our strength and the necessity of increasing our resources to lighten the burden of taxation.

In view of the Centennial Exhibition it is clear that a survey must be undertaken immediately, if our State shall make any clear and useful statement of its natural advantages.

It is not the least recommendation of such a survey, that it will prove itself a safeguard against monopoly; for it will undoubtedly develop inexhaustible mineral wealth accessible to all. It will increase the supply and distribution of coveted articles, and make it impossible that any set of men should control them.

It is proposed in the Governor's message to organize a board representing the various interests and sections of the State. The members shall be familiar with the objects of a survey and the work involved in one. They shall serve gratuitously. In the hands of this board it is proposed to place control of the work and expenditure, and it shall be responsible for the proper application of the appropriation. The organization proposed is based on that of the various boards of our State in charge of public charities. The general result of the work of these boards has been satisfactory, and at the same time efficient and practical. Judging by their success, the work of a geological survey may be put into the hands of such a board with confidence that it will be accomplished both thorougly and creditably. The members should be appointed by the Governor with the consent of the Senate; they should serve the Commonwealth with personal devotion, at the cost of all necessary time and trouble.

Under such circumstances a Survey can be made so useful, that it will put forward, by a generation, the material progress of the State. It is not too much to say that the continued prosperity of the State and its progress in keeping with that of sister States depends greatly on the wise provision for the future made by a general and efficient Geological Survey.